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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/588,228

08/03/2006

Yutaka Shibata

4633-0178PUS1

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EXAMINER

WALBERG, TERESA J

ART UNIT

PAPER NUMBER

3744

NOTIFICATION DATE

DELIVERY MODE

10/02/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No. 10/588,228	Applicant(s) SHIBATA ET AL.	
	Examiner Teresa J. Walberg	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 5-7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes et al (2004/0154787).

Hughes discloses a hot water supply heat exchanger (Fig. 1) including a water pipe (14) forming a water passage and a refrigerant pipe (32) forming a refrigerant passage, the hot water supply heat exchanger being for heating water flowing through the water passage by a refrigerant flowing through the refrigerant passage (see abstract), an inlet part of the water passage having water of a predetermined temperature or less is provided with a heat transfer enhancer (52 in Fig. 4) or a heat transfer enhancement pipe section (52 in Fig. 4), the enhancer being spiral grooves formed in the inner surface of the water pipe (52 in Fig. 4), the refrigerant pipe being connected to the periphery of the water pipe (Fig. 1). Hughes does not disclose a heat transfer enhancer provided on only a part of the fluid passage or the passage being an ellipse. It is conventional in the art to make fluid flow tubes in many different shapes including ellipses. It would have been obvious to one of ordinary skill in the art to use an ellipse shaped to rather than a round tube in the heat exchanger of Hughes et al, as an obvious

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substitution of one known pipe shape for another. It would have been obvious to one of ordinary skill in the art to provide a heat transfer enhance in certain desired locations and not in other locations, the motivation being to increase heat transfer only in desired locations.

3. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daikin (JP 2003-97898) in view of Hitachi (JP 9-72683).

Daikin discloses a hot water supply heat exchanger (Fig. 1) including a water pipe (9) forming a water passage and a refrigerant pipe (10) forming a refrigerant passage, the hot water supply heat exchanger being capable of heating water flowing through the water passage by a refrigerant flowing through the refrigerant passage, a plurality of heat exchanger units stacked one above another and connected to form continuous passages (Fig. 1), the refrigerant pipe being connected to the periphery of the water pipe (Fig. 1).

Daikin does not disclose an inlet part of the water passage being provided with a heat transfer enhancer, the heat transfer enhancer being spiral grooves. Hitachi discloses providing spiral grooves as a heat transfer enhancer in the inner surface of a heat exchange pipe. It would have been obvious in view of Hitachi to provide spiral grooves in the inner surface of the pipe of Daikin as a heat transfer enhancer, the motivation being to increase the rate of heat transfer.

Daikin in view of Hitachi do not disclose a heat transfer enhancer provided on only a part of the fluid passage or the passage being an ellipse. It is conventional in the art to make fluid flow tubes in many different shapes including

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ellipses. It would have been obvious to one of ordinary skill in the art to use an ellipse shaped to rather than a round tube in the heat exchanger of Daikin in view of Hitachi, as an obvious substitution of one known pipe shape for another. It would have been obvious to one of ordinary skill in the art to provide a heat transfer enhancement in certain desired locations and not in other locations, the motivation being to increase heat transfer in desired locations.

4. Applicant's arguments filed 23 May 2008 have been fully considered but they are not persuasive.

Applicant argues that the references do not disclose a heat transfer enhancer provided on only a part of the fluid passage.

It is conventional in the art to make heat transfer tubes lacking in heat transfer enhancement and heat transfer tubes having heat transfer enhancement. Thus, it would have been obvious to one of ordinary skill in the art to provide a heat transfer enhancement in certain desired locations and not in other locations, the motivation being to increase heat transfer in desired locations.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa J. Walberg whose telephone number is 571-272-4790. The examiner can normally be reached on M-F 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Teresa J. Walberg/
Primary Examiner, Art Unit 3744

/TW/